We claim:

1. An isolated, recombinant, or purified polypeptide comprising:

a) SEQ ID NO 2;

b) SEQ ID NO: 3;

c) SEQ ID NO: 4;

d) fragments of SEQ ID NOs: 2, 3, or 4;

e) a polypeptide as set forth in Tables 1, 2, or 3;

f) a variant polypeptide of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4;

g) a variant polypeptide fragment of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide fragment specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a fragment of SEQ ID NO: 2, 3, or 4;

h) a variant of a polypeptide as set forth in Table 1, 2 or 3, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a polypeptide as set forth in Table 1, 2 or 3;

i) a heterologous polypeptide fused, in frame, to a polypeptide comprising: 1) SEQ ID NO: 2, 3, or 4; 2) fragments of SEQ ID NO: 2, 3, or 4; or 3) a polypeptide as set forth in Tables 1, 2 or 3;

j) a multimeric construct comprising: a) SEQ ID NO: 2, 3 or 4; b) fragments of SEQ ID NO: 2, 3 or 4; c) combinations of SEQ ID NO: 2, 3, 4, or fragments or variants thereof.

2. A composition comprising at least one isolated, recombinant, or purified polypeptide according to claim 1 and an additional component.

3. The composition according to claim 2, wherein said additional component is a solid support.

4. The composition according to claim 3, wherein said solid support is selected from the group consisting of microtiter wells, magnetic beads, non-magnetic beads, agarose beads, glass, cellulose, plastics, polyethylene, polypropylene, polyester, nitrocellulose, nylon, and polysulfone.

5. The composition according to claim 2, wherein said additional component is a pharmaceutically acceptable excipient.

6. The composition according to claim 3, wherein said solid support provides an array of polypeptides and said array of polypeptides is selected from the group consisting of:

a) SEQ ID NO 2;

b) SEQ ID NO: 3;

c) SEQ ID NO: 4;

d) fragments of SEQ ID NOs: 2, 3, or 4;

e) a polypeptide as set forth in Tables 1, 2 or 3;

f) a variant polypeptide of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4;

g) a variant polypeptide fragment of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide fragment specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a fragment of SEQ ID NO: 2, 3, or 4;

h) a variant of a polypeptide as set forth in Table 1 or 2, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a polypeptide as set forth in Table 1 or 2;

i) a heterologous polypeptide fused, in frame, to a polypeptide comprising: 1) SEQ ID NO: 2, 3, or 4; 2) fragments of SEQ ID NO: 2, 3, or 4; or 3) a polypeptide as set forth in Tables 1 or 2; and

j) combinations of said polypeptides and variants.

7. The composition of claim 6, further comprising an additional antigen of interest.

8. A method of binding an antibody to a polypeptide comprising contacting a sample containing an antibody with a polypeptide under conditions that allow for the formation of an antibody-antigen complex, wherein said polypeptide is selected from the group consisting of:

a) SEQ ID NO 2;

b) SEQ ID NO: 3;

c) SEQ ID NO: 4;

d) fragments of SEQ ID NOs: 2, 3 or 4;

e) a polypeptide as set forth in Tables 1, 2 or 3;

f) a variant polypeptide of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4;

g) a variant polypeptide fragment of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide fragment specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a fragment of SEQ ID NO: 2, 3, or 4;

h) a variant of a polypeptide as set forth in Table 1, 2 or 3, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a polypeptide as set forth in Table 1, 2 or 3;

i) a heterologous polypeptide fused, in frame, to a polypeptide comprising: 1) SEQ ID NO: 2, 3, or 4; 2) fragments of SEQ ID NO: 2, 3, or 4; or 3) a polypeptide as set forth in Tables 1, 2 or 3; and

j) mixtures of polypeptides as set forth in a), b), c), d), e), f), g), h), or i)

9. The method according to claim 8, further comprising the step of detecting the formation of said antibody-antigen complex.

10. The method according to claim 8, wherein said method is an immunoassay.

11. The method according to claim 10, wherein said immunoassay is selected from the group consisting of enzyme linked immunosorbent assays (ELISAs), radioimmunoassays (RIAs), lateral flow assays, immunochromatographic strip assays, automated flow assays,

Western blots, immunoprecipitation assays, reversible flow chromatographic binding assays, agglutination assays, and biosensors.

12. The method according to claim 8, wherein said method is performed using an array of polypeptides.

13. The method according to claim 12, wherein said array of polypeptides comprises the same polypeptide.

14. The method of claim 12, wherein said array of polypeptides comprises the same or different epitopes of the polypeptide of SEQ ID NOs: 2, 3, or 4.

15. The method of claim 12, wherein said array of polypeptides further comprises isolated polypeptides from other organisms of interest.

16. The method of claim 15, wherein said other organisms of interest are selected from the group consisting of *Borrelia burgdorferi*, *Ehrlichia canis*, *Ehrlichia chaffeensis*, *Ehrlichia ruminantium*, *Anaplasma marginale*, and combinations of said organisms of interest.

17. In a method of detecting the presence of antibodies that specifically bind to *Anaplasma phagocytophilum* or antigens thereof, the improvement comprising the use of at least one isolated, recombinant, purified polypeptide comprising:

a) SEQ ID NO 2;

b) SEQ ID NO: 3;

c) SEQ ID NO: 4;

d) fragments of SEQ ID NOs: 2, 3, or 4;

e) a polypeptide as set forth in Tables 1, 2 or 3;

f) a variant polypeptide of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4;

g) a variant of a polypeptide fragment of a polypeptide fragment of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide fragment specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4, a fragment of SEQ ID NO: 2, 3, or 4, or a polypeptide as set forth in Table 1, 2 or 3;

h) a variant of a polypeptide as set forth in Table 1, 2 or 3, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a polypeptide as set forth in Table 1, 2 or 3;

i) a heterologous polypeptide fused, in frame, to a polypeptide comprising: 1) SEQ ID NO: 2, 3, or 4; 2) fragments of SEQ ID NO: 2, 3, or 4; or 3) a polypeptide as set forth in Table 1, 2 or 3; or

j) a combination of polypeptides as set forth in a), b), c), d), e), f), g), h), or i).

18. An isolated or purified polynucleotide comprising:

a) a polynucleotide sequence encoding a polypeptide selected from the group consisting of:

1) SEQ ID NO 2;

2) SEQ ID NO: 3;

3) SEQ ID NO: 4;

4) fragments of SEQ ID NOs: 2, 3, or 4;

5) a polypeptide as set forth in Tables 1, 2 or 3;

6) a variant polypeptide of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4;

7) a variant polypeptide fragment of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide fragment specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a fragment of SEQ ID NO: 2, 3, or 4;

8) a variant of a polypeptide as set forth in Table 1, 2 or 3, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a polypeptide as set forth in Table 1, 2 or 3;

9) a heterologous polypeptide fused, in frame, to a polypeptide comprising: 1) SEQ ID NO: 2, 3, or 4; 2) fragments of SEQ ID NO: 2, 3, or 4; or 3) a polypeptide as set forth in Tables 1, 2 or 3;

10) a multimeric construct comprising: a) SEQ ID NO: 2, 3 or 4; b) fragments of SEQ ID NO: 2, 3 or 4; c) combinations of SEQ ID NO: 2, 3, 4, or fragments or variants thereof.

b) a polynucleotide sequence having at least about 60% to 99.99% identity to a polynucleotide sequence encoding a polypeptide according to (a)(1) through (a)(10);

c) a polynucleotide sequence comprising SEQ ID NO: 1;

d) a polynucleotide sequence having at least about 60% to 99.99% identity to the polynucleotide sequence of SEQ ID NO: 1;

e) a polynucleotide that is complementary to the polynucleotides set forth in (a), (b), (c), or (d);

f) a genetic construct comprising a polynucleotide sequence as set forth in (a), (b), (c), (d), or (e);

g) a vector comprising a polynucleotide or genetic construct as set forth in (a), (b), (c), (d), (e), or (f);

h) a polynucleotide that hybridizes under low, intermediate or high stringency with a polynucleotide sequence as set forth in (a), (b), (c), (d), (e), (f), or (g); or

i) a probe comprising a polynucleotide according to (a), (b), (c), (d), (e), (f), (g) (h) and, optionally, a label or marker.

19. An antibody that specifically binds to a polypeptide selected from the group consisting of:

1) SEQ ID NO 2;

2) SEQ ID NO: 3;

3) SEQ ID NO: 4;

4) fragments of SEQ ID NOs: 2, 3, or 4;

5) a polypeptide as set forth in Table 1, 2 or 3;

6) a variant polypeptide of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4;

7) a variant polypeptide fragment of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide fragment specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a fragment of SEQ ID NO: 2, 3, or 4;

8) a variant of a polypeptide as set forth in Table 1, 2 or 3, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a polypeptide as set forth in Table 1, 2 or 3;

9) a heterologous polypeptide fused, in frame, to a polypeptide comprising: 1) SEQ ID NO: 2, 3, or 4; 2) fragments of SEQ ID NO: 2, 3, or 4; or 3) a polypeptide as set forth in Tables 1 or 2;

20. The antibody according to claim 19, further comprising an additional component.

21. The antibody according to claim 20, wherein said additional component is a solid support.

22. The antibody according to claim 20, wherein said additional component is a carrier.

23. The antibody according to claim 22, wherein said carrier is a pharmaceutically acceptable excipient.

24. The antibody according to claim 20, wherein said additional component is a label.

25. The antibody according to claim 19, wherein said antibody does not cross-react with an antigen of *Anaplasma marginale*, *Anaplasma centrale*, *Ehrlichia canis*, *Ehrlichia chaffeensis*, or *Cowdria ruminantium*.

26. A host cell comprising a polynucleotide according to claim 18.

27. A method of making a recombinant host cell comprising the introduction of a polynucleotide into a host cell, wherein said polynucleotide comprises:

a) a polynucleotide sequence encoding a polypeptide selected from the group consisting of:

1) SEQ ID NO 2;

2) SEQ ID NO: 3;

3) SEQ ID NO: 4;

4) fragments of SEQ ID NOs: 2, 3, or 4;

5) a polypeptide as set forth in Tables 1, 2 or 3;

6) a variant polypeptide of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4;

7) a variant polypeptide fragment of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide fragment specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a fragment of SEQ ID NO: 2, 3, or 4;

8) a variant of a polypeptide as set forth in Table 1, 2 or 3, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a polypeptide as set forth in Table 1, 2 or 3;

9) a heterologous polypeptide fused, in frame, to a polypeptide comprising: 1) SEQ ID NO: 2, 3, or 4; 2) fragments of SEQ ID NO: 2, 3, or 4; or 3) a polypeptide as set forth in Table 1, 2 or 3;

10) a multimeric construct comprising: a) SEQ ID NO: 2, 3 or 4; b) fragments of SEQ ID NO: 2, 3 or 4; c) combinations of SEQ ID NO: 2, 3, 4, or fragments or variants thereof.

b) a polynucleotide sequence having at least about 60% to 99.99% identity to a polynucleotide sequence encoding a polypeptide according to (a)(1) through (a)(10);

c) a polynucleotide sequence comprising SEQ ID NO: 1;

d) a polynucleotide sequence having at least about 20% to 99.99% identity to the polynucleotide sequence of SEQ ID NO: 1;

e) a polynucleotide that is complementary to the polynucleotides set forth in (a), (b), (c), or (d);

f) a genetic construct comprising a polynucleotide sequence as set forth in (a), (b), (c), (d), or (e);

g) a vector comprising a polynucleotide or genetic construct as set forth in (a), (b), (c), (d), (e), or (f);

h) a polynucleotide that hybridizes under low, intermediate or high stringency with a polynucleotide sequence as set forth in (a), (b), (c), (d), (e), (f), or (g).

28. The method according to claim 27, further comprising the step of culturing said recombinant host cell.

29. The method according to claim 27, further comprising the step of culturing said transformed host cell under conditions that allow for the expression of a polypeptide encoded by said polynucleotide.

30. The method according to claim 29, further comprising the step of recovering said expressed polypeptide.

31. In a nucleic acid based assay for the detection of Anaplasma *phagocytophilum*, the improvement comprising the use of a polynucleotide according to claim 18.

32. The method according to claim 31, wherein said polynucleotide does not hybridize with a polynucleotide sequence from *Anaplasma marginale*, *Anaplasma centrale*, *Ehrlichia canis*, *Ehrlichia chaffeensis*, or *Cowdria ruminantium*.

33. A method of hybridizing polynucleotides comprising contacting a sample comprising a population of polynucleotides with a second population of polynucleotides under conditions that allow for the formation of an hybridization complex, wherein said second population of polynucleotides comprises polynucleotides that encode at least one polypeptide that is selected from the group consisting of:

a) SEQ ID NO 2;

b) SEQ ID NO: 3;

c) SEQ ID NO: 4;

d) fragments of SEQ ID NOs: 2, 3, or 4;

e) a polypeptide as set forth in Tables 1 or 2;

f) a variant polypeptide of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4;

g) a variant polypeptide fragment of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide fragment specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a fragment of SEQ ID NO: 2, 3, or 4;

h) a variant of a polypeptide as set forth in Table 1 or 2, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a polypeptide as set forth in Table 1 or 2;

i) a heterologous polypeptide fused, in frame, to a polypeptide comprising: 1) SEQ ID NO: 2, 3, or 4; 2) fragments of SEQ ID NO: 2, 3, or 4; or 3) a polypeptide as set forth in Tables 1 or 2; and

j) mixtures of polypeptides as set forth in a), b), c), d), e), f), g), h), or i)

34. The method according to claim 32, further comprising the step of detecting the hybridization complex.

35. The method according to claim 32, wherein said second population of polynucleotides is an array of polynucleotides or the same or different sequence.

36. The method according to claim 31, wherein said polynucleotide does not hybridize with a polynucleotide sequence from *Anaplasma marginale*, *Anaplasma centrale*, *Ehrlichia canis*, *Ehrlichia chaffeensis*, or *Cowdria ruminantium*.

37. A method of inducing an immune response comprising the administration of:

1) a polypeptide antigen comprising:

a) SEQ ID NO 2;

b) SEQ ID NO: 3;

c) SEQ ID NO: 4;

d) fragments of SEQ ID NOs: 2, 3, or 4;

e) a polypeptide as set forth in Table 1, 2 or 3;

f) a variant polypeptide of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4;

g) a variant polypeptide fragment of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide fragment specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a fragment of SEQ ID NO: 2, 3, or 4;

h) a variant of a polypeptide as set forth in Table 1, 2 or 3, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a polypeptide as set forth in Table 1, 2 or 3;

i) a heterologous polypeptide fused, in frame, to a polypeptide comprising: 1) SEQ ID NO: 2, 3, or 4; 2) fragments of SEQ ID NO: 2, 3, or 4; or 3) a polypeptide as set forth in Table 1, 2 or 3; and

j) mixtures of polypeptides as set forth in a), b), c), d), e), f), g), h), or i);

2) a polynucleotide encoding at least one polypeptide antigen that is selected from the group consisting of:

a) SEQ ID NO 2;

b) SEQ ID NO: 3;

c) SEQ ID NO: 4;

d) fragments of SEQ ID NOs: 2, 3, or 4;

e) a polypeptide as set forth in Table 1, 2 or 3;

f) a variant polypeptide of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4;

g) a variant polypeptide fragment of SEQ ID NO: 2, 3, or 4, wherein said variant polypeptide fragment specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a fragment of SEQ ID NO: 2, 3, or 4;

h) a variant of a polypeptide as set forth in Table 1, 2 or 3, wherein said variant polypeptide specifically binds to an antibody that specifically binds to a polypeptide of SEQ ID NO: 2, 3, or 4 or a polypeptide as set forth in Table 1, 2 or 3;

i) a heterologous polypeptide fused, in frame, to a polypeptide comprising: 1) SEQ ID NO: 2, 3, or 4; 2) fragments of SEQ ID NO: 2, 3, or 4; or 3) a polypeptide as set forth in Table 1, 2 or 3; and

j) mixtures of polypeptides as set forth in a), b), c), d), e), f), g), h), or i); or

3) the administration of at least one of said polypeptide antigens and at least one of said polynucleotides encoding an antigen.